

P27377.A17

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Takayuki WAGU et al.                      Group Art Unit: 3683  
Appln. No. : 10/720,257                                      Examiner: Christopher P. Schwartz  
Filed : November 25, 2003                                  Confirmation No.: 4101  
For : **BRAKE FLUID PRESSURE MAINTAINING APPARATUS FOR  
VEHICLES**

**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Window, Mail Stop Appeal Brief-Patents  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir:

This appeal is from the Examiner's final rejection of claims 1-23 as set forth in the Final Office Action of August 3, 2006. A Notice of Appeal and a Request for Pre-Appeal Brief Review, in response to the August 3, 2006 Final Office Action, were filed on January 2, 2007.

Please charge Deposit Account No. 19-0089 in the amount of \$ 500.00 as payment of the requisite fee under 37 C.F.R. 41.20(b)(2). No additional fee is believed to be required for filing the instant Appeal Brief. However, if for any reason a necessary fee is required for consideration of the instant paper, authorization is hereby given to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 19-0089.

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**(I) REAL PARTY IN INTEREST**

The real party in interest is Nissin Kogyo Co., Ltd. by an assignment recorded in the U.S. Patent and Trademark Office on November 25, 2003, at Reel 014739 and Fame 0756.

**(II) RELATED APPEALS AND INTERFERENCES**

No related appeals and/or interferences are pending.

**(III) STATUS OF THE CLAIMS**

Claims 1-23 are pending. Claims 1-23 stand finally rejected and are the subject of this appeal. The claims in issue are attached in the "Claims Appendix". All amendments to the claims have been entered.

**(IV) STATUS OF THE AMENDMENTS**

A Notice of Appeal and a Request for Pre-Appeal Brief Review were filed on January 2, 2007 in response to the August 3, 2006 Final Office Action. A Rule 1.116 Response was filed on November 3, 2006. An Advisory Action dated November 20, 2006 indicated that the Rule 1.116 Response was considered but did not place the application in condition for allowance. No other response was filed following the Final Office Action. Appellant submits that no amendments after final have been filed and that all amendments to the claims have been entered.

**(V) SUMMARY OF THE CLAIMED SUBJECT MATTER**

**A. The Claimed Subject Matter**

**1. INDEPENDENT CLAIM 1**

With reference to the Detailed Description section and, in particular, page 22, line 18 to page 52, line 12 of the instant application and to Figs. 1-5, and by way of non-limiting example, the invention is directed to a brake fluid pressure maintaining apparatus for a vehicle, comprising a master cylinder (2) for generating a brake fluid pressure when a driver steps on a brake pedal (1). A check valve (23) is interposed between the master cylinder (2) and a wheel brake (4) operatable by the brake fluid pressure from the master cylinder (2) for allowing the flow of the brake fluid pressure from the master cylinder (2) to the wheel brake (4) in a braking operation. A normally-open electromagnetic valve (6) is closable in order to temporarily maintain the brake fluid pressure of the wheel brake (4) even after release of stepping on the brake pedal (1). The normally-open electromagnetic valve (6) includes an electromagnetic coil (44) for generating an electromagnetic force when a current is applied thereto, a fixed core (40) to be immovably disposed, and a movable core (41) to be attracted to the fixed core. In a brake fluid pressure maintaining state, the normally-open electromagnetic valve (6) is closed due to the electromagnetic force to thereby prevent the return of the brake fluid pressure from the wheel brake to the master cylinder (see page 31, line 22 to page 32, line 3 of the instant specification). In a brake fluid pressure no-maintaining state, the normally-open electromagnetic valve is always opened to thereby allow the

flow of the brake fluid pressure from the master cylinder to the wheel brake or the return of the brake fluid pressure from the wheel brake to the master cylinder (see page 31, lines 10-21 and page 35, lines 6-10 of the instant specification). The normally-open electromagnetic valve (6) is controllable as follows: when it is detected that the vehicle is stopped, the electromagnetic coil is energized and the normally-open electromagnetic valve is closed (see page 38, lines 21-25 of the instant specification); by changing the value of the current to be applied to the electromagnetic coil, an attracting force for closing the normally-open electromagnetic valve is changed (see page 43, lines 8-13 of the instant specification); and by setting the attracting force at a given value, the brake fluid pressure to be maintained on the wheel brake side is set (see page 39, lines 3-11 and page 48, lines 9-12 of the instant specification). When the normally-open electromagnetic valve (6) is closed due to application of a current to the electromagnetic coil, in case where the brake fluid pressure of the wheel brake is higher than the attracting force of the given value, the normally-open electromagnetic valve is opened against the attracting force to thereby reduce the brake fluid pressure of the wheel brake down to the given value (see page 41, line 5 to page 42, line 9 of the instant specification).

## **2. INDEPENDENT CLAIM 14**

With reference to the Detailed Description section and, in particular, page 22, line 18 to page 52, line 12 of the instant application and to Figs. 1-5, and by way of non-limiting example, the invention is directed to a brake fluid pressure maintaining

apparatus for a vehicle, comprising a master cylinder (2). A check valve (23) is interposed between the master cylinder (2) and a wheel brake (4). Means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value. The means includes valve 6, the relief mechanism 7, and the control of current to the valve 6 as described on page 41, line 5 to page 42, line 9 and as shown in Fig. 5 of the instant application. The normally-open electromagnetic valve (6) is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil (44) of the normally-open electromagnetic valve (6) is energized and the normally-open electromagnetic valve (6) is closed (see page 38, line 21-25 of the instant specification).

### **3. INDEPENDENT CLAIM 20**

With reference to the Detailed Description section and, in particular, page 22, line 18 to page 52, line 12 of the instant application and to Figs. 1-5, and by way of non-limiting example, the invention is directed to a brake fluid pressure maintaining apparatus for a vehicle, comprising a check valve (23) interposed between a master cylinder (2) and a wheel brake (4). Means for adjusting a brake fluid pressure in the wheel brake (4) on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve (6) having an electromagnetic coil (44) disposed between a movable core (41) and a fixed core (40) to increase or decrease an

attracting force between the movable core and the fixed core. The means includes valve 6, the relief mechanism 7, and the control of current to the valve 6 as described on page 37, line 3 to page 47, line 14 and as shown in Fig. 5 of the instant application. After the brake fluid pressure of the wheel brake (4) is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil (44) is lowered to reduce the attracting force acting on the movable core (41), the brake fluid pressure of the wheel brake (4) becomes higher than the attracting force that can close the normally-open electromagnetic valve (6), and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake (see page 41, lines 16-23 of the specification).

#### **4. DEPENDENT CLAIM 15**

Claim 15 further defines the means of claim 14 as one that is provided gradually such that the attracting force is gradually reduced (see page 18, lines 12-16 of the specification).

#### **5. DEPENDENT CLAIM 16**

Claim 16 further defines the means of claim 14 as one that includes a current applied to the normally-open electromagnetic valve to close the normally-open

electromagnetic valve and reduce the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduce the attracting force gradually and thus reduce the brake fluid pressure of the wheel brake gradually due to variations in the attracting force (see page 32, line 11 to page 33, line 3 and page 35, lines 11-21 of the specification).

**6. DEPENDENT CLAIM 17**

Claim 17 depends from claim 14 and further comprises a means for increasing the attracting force between the fixed core and the movable core. The means includes the an increase in current to the coil 44 as discussed on page 30, line 5-23 and page 32, lines 11-17 of the specification.

**7. DEPENDENT CLAIM 19**

Claim 19 depends from claim 14 and further comprises a means for preventing a pressure difference from being generated between an interior of the housing and guide tube due to movement of the movable core. The means includes features 50 and 51 as described on page 29, lines 4-15 of the instant specification).

**(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

**Whether claims 1-3, 8, 11-17, 19, 20 and 22 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,167,442 to ALAZE et al. in view of WO 95/19282 to HALL and U.S. Patent No. 6,086,515 to BUSCHMANN et al.**

**Whether claims 4-7, 18, 21 and 23 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,167,442 to**



**ALAZE et al. in view of WO 95/19282 to HALL and U.S. Patent No. 6,086,515 to BUSCHMANN et al., and further in view of U.S. Patent No. 5,771,933 to AKAMATSU et al.,**

**Whether claims 1-3, 8, 9, 14-17, 19, 20 and 22 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 to HALL and U.S. Patent No. 6,086,515 to BUSCHMANN et al.**

**Whether claims 4-7, 10-13, 18, 21 and 23 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 to HALL and U.S. Patent No. 6,086,515 to BUSCHMANN et al., and further in view of U.S. Patent No. 5,771,933 to AKAMATSU et al.,**

**(VII) ARGUMENT RE. 103(a) REJECTIONS**

**Claims 1-3, 8, 11-17, 19, 20 and 22 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,167,442 to ALAZE et al. in view of WO 95/19282 to HALL and U.S. Patent No. 6,086,515 to BUSCHMANN et al.**

**REJECTION OF INDEPENDENT CLAIM 1 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

In the Office Action, the Examiner asserts that ALAZE's valve unit 24 corresponds to Appellant's claimed normally-open electromagnetic valve, and presumes that ALAZE's valve unit 24, although not specifically disclosed in ALAZE, performs the relief function of Appellant's electromagnetic valve. Appellant respectfully submits that the Examiner's presumption is improper, at least because ALAZE does not disclose or suggest that the valve unit 24 controls changing the value of a current

applied to the electrical coil 56 of the valve unit 24, as recited in independent claim 1.

Appellant emphasizes that claim 1 is directed to a brake fluid pressure maintaining apparatus for a vehicle which includes, inter alia, a master cylinder that generates a brake fluid pressure when a driver steps on a brake pedal, a check valve interposed between the master cylinder and a wheel brake, and a normally-open electromagnetic valve which is closable to temporarily maintain the brake fluid pressure of the wheel brake even after release of stepping on the brake pedal. Claim 1, in particular, recites that the normally-open electromagnetic valve is controllable as follows:

when it is detected that the vehicle is stopped, the electromagnetic coil is energized and the normally-open electromagnetic valve is closed;

by changing the value of the current to be applied to the electromagnetic coil, an attracting force for closing the normally-open electromagnetic valve is changed; and

by setting the attracting force at a given value, the brake fluid pressure to be maintained on the wheel brake side is set.

Appellant acknowledges that the electromagnetic valve of ALAZE is provided with a spring 64 having a relief function and that the relief pressure of the electromagnetic valve is determined by the spring constant of the spring 64. However, because the relief pressure of ALAZE is determined by the spring constant, the relief pressure in ALAZE is constant. The invention, in contrast, provides for an arrangement wherein the relief pressure is changeable, i.e., controlled in the claimed manner.

On page 3 of the instant Final Office Action, the Examiner acknowledges that ALAZE does not specifically describe the claimed relief function, but asserts that HALL

shows that it is well known to control the total biasing forces acting on a valve and the brake pressure levels in a wheel by changing the level of a current applied to a coil.

Appellant respectfully disagrees.

HALL relates to an electronic pressure relief system for traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of HALL. The pressure relief system includes a normally open valve 24, which is disposed between the isolation valve 32 and a wheel brake 20 (see Figure 1 of HALL). However, although the isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of HALL, while apparently participating in the control of the brake fluid pressure applied to HALL's wheel brake 20, does not function like the invention. To the contrary, the brake fluid pressure in HALL is utilized to activate traction control, i.e., in the case of uncontrollable spinning when the vehicle fails to hold proper contact with the road surface. The invention, on the other hand, utilizes pressure control when a vehicle stop condition is detected and when the vehicle is on a sloping road.

HALL's isolation valve 32 simply does not function in the same way as the invention. In fact, HALL fails to disclose or suggest that a current applied to the normally open valve 24 is adjusted. HALL also fails to disclose that brake fluid pressure of the wheel brake 20 is lowered to a given value under the control of any such adjustment, or that a value of the current applied to the normally open valve 24 is

lowered to reduce an attracting force on a movable coil. To the contrary, there is no adjustment of the HALL normally open valve 24, at all. If there is to be any interpretation, the isolation valve 32 may be adjusted; however, the isolation valve is not configured to adjust a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to an electromagnetic valve disposed between a movable core and a fixed core. Accordingly, HALL cannot show these features of the claimed invention.

Thus, HALL does not disclose or suggest that the normally open valve 24 controls changing the value of a current applied to an electromagnetic coil of the valve 24. As such, Appellant respectfully submits that the combination of ALAZE and HALL fails to disclose or suggest the combination of features recited in at least claim 1. Further, because the isolation valve 32 of HALL performs a function disparate from valve unit 24 of ALAZE (i.e., relieving pressure in a conduit versus relieving pressure on a wheel brake), Appellant respectfully submits that it would not be obvious to combine the features of these valves in the manner suggested by the Examiner.

BUSCHMANN does not cure the deficiencies of ALAZE and HALL. In particular, Appellant submits that no proper combination of ALAZE, HALL and BUSCHMANN discloses or suggests a normally-open electromagnetic valve which is configured to control changing the value of a current to be applied to an electromagnetic coil to change an attracting force for closing the electromagnetic valve, and setting the attracting force at a given value to set brake fluid pressure to be maintained on a wheel

brake side, as recited in Appellant's independent claim 1.

Appellant acknowledges that BUSCHMANN discloses a system for applying brake pressure when the vehicle is parked and turned off. BUSCHMANN also shows a brake system which can retain a vehicle on an inclined roadway when starting uphill and uses output signals of the sensors that are sent to the inputs E of an electronic controller 17 which evaluates the signals and furnishes braking pressure control signals through its outputs A for the actuation of the inlet and outlet valves 3, 4, 5, 6 and 7, 8, 9, 10 and the separating valve 15 and for switching on and off of the pump drive motor 11. Furthermore, anti-lock control is performed in a known fashion by way of the inlet valves 3, 4, 5, 6 and the outlet valves 7, 8, 9, 10. However, BUSCHMANN has not been shown by the Examiner to disclose a normally-open electromagnetic valve which is configured to control changing the value of a current to be applied to an electromagnetic coil to change an attracting force for closing the electromagnetic valve, and setting the attracting force at a given value to set brake fluid pressure to be maintained on a wheel brake side, as recited in Appellant's independent claim 1. Indeed, the Examiner has relied upon BUSCHMANN "only" to show typically states of valves.

Although the Examiner has concluded that it would have been obvious to combine the teachings of ALAZE, HALL and BUSCHMANN, the Examiner neglects to set forth any response to Appellant's assertion that there is no proper basis for combining the teachings of the applied documents. In establishing a *prima facie* case of obviousness under 35

U.S.C. § 103, it is incumbent upon the Examiner to provide a reason *why* one of ordinary skill in the art would have found it obvious to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See *Ex parte Clapp*, 227 USPQ 972 (B.P.A.I. 1985) To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from Appellant's disclosure. See, for example, *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). As noted above, each of the applied documents is silent with regard to a number of recited features and each of the documents relates to different devices that function in different manners. Moreover, none of the documents teaches or suggests modifying the structure or operation of ALAZE in the manner asserted by the Examiner.

Because the art of record fails to provide any reasonable explanation why one ordinarily skilled in the art would utilize such an arrangement, and/or fails to disclose or suggest the problems that such an arrangement would address, Appellant submits that the art of record fails to provide the requisite motivation or rationale as to *why* one ordinarily skilled in the art would modify ALAZE to include features of any of the secondary references in the manner asserted by the Examiner. That is, Appellant submits that because the Examiner has not set forth any basis or reason found in the art of record for combining these documents, the instant rejection has no basis in the art of record, such that the rejection is improper and should be withdrawn.

Rejections based on 35 U.S.C. § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The Examiner has the initial duty of supplying the factual basis for the rejection and may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967). As stated in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984):

[t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

Appellant submits that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner is the result of a review of Appellant's disclosure and the application of impermissible hindsight. And, in any event, such a combination would still not result in the claimed invention.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least independent claim 1.

**REJECTION OF INDEPENDENT CLAIM 14 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 14 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the

Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Although not specifically addressed with regard to claim 14, the Examiner appears to assert that ALAZE's valve unit 24 corresponds to Appellant's claimed normally-open electromagnetic valve, and presumes that ALAZE's valve unit 24, although not specifically disclosed in ALAZE, performs the relief function of Appellant's electromagnetic valve. Appellant respectfully submits that the Examiner's presumption is improper, at least because ALAZE does not disclose or suggest that the valve unit 24 controls changing the value of a current applied to the electrical coil 56 of the valve unit 24, as recited in independent claim 14.

Appellant emphasizes that claim 14 is directed to a brake fluid pressure maintaining apparatus for a vehicle that includes means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed.

As explained above, Appellant acknowledges that the electromagnetic valve of ALAZE is provided with a spring 64 having a relief function and that the relief pressure of the electromagnetic valve is determined by the spring constant of the spring 64.



However, because the relief pressure of ALAZE is determined by the spring constant, the relief pressure in ALAZE is constant. The invention, in contrast, provides for an arrangement wherein the relief pressure is changeable, i.e., controlled in the claimed manner.

On page 3 of the instant Final Office Action, the Examiner acknowledges that ALAZE does not specifically describe the claimed relief function, but asserts that HALL shows that it is well known to control the total biasing forces acting on a valve and the brake pressure levels in a wheel by changing the level of a current applied to a coil. Appellant respectfully disagrees.

HALL relates to an electronic pressure relief system for traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of Hall. The disclosed pressure relief system includes a normally open valve 24, which is disposed between the isolation valve 32 and a wheel brake 20 (see Figure 1 of HALL). However, although the isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of HALL, while apparently participating in the control of the brake fluid pressure applied to HALL's wheel brake 20, does not function like the invention. To the contrary, the brake fluid pressure in HALL is utilized to activate traction control, i.e., in the case of uncontrollable spinning when the vehicle fails to hold proper contact with the road surface. The invention, on the other hand, utilizes pressure control when a vehicle stop

condition is detected and when the vehicle is on a sloping road.

Again, HALL's isolation valve 32 simply does not function in the same way as the invention. In fact, HALL fails to disclose or suggest that a current applied to the normally open valve 24 is adjusted. HALL also fails to disclose that brake fluid pressure of the wheel brake 20 is lowered to a given value under the control of any such adjustment, or that a value of the current applied to the normally open valve 24 is lowered to reduce an attracting force on a movable coil. To the contrary, there is no adjustment of the HALL normally open valve 24, at all. If there is to be any interpretation, the isolation valve 32 may be adjusted; however, the isolation valve is not configured to adjust a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to an electromagnetic valve disposed between a movable core and a fixed core. Accordingly, HALL cannot show these features of the claimed invention.

Thus, HALL does not disclose or suggest that the normally open valve 24 controls changing the value of a current applied to an electromagnetic coil of the valve 24. As such, Appellant respectfully submits that the combination of ALAZE and HALL fails to disclose or suggest the combination of features recited in at least claim 14. Further, because the isolation valve 32 of HALL performs a function disparate from valve unit 24 of ALAZE (i.e., relieving pressure in a conduit versus relieving pressure on a wheel brake), Appellant respectfully submits that it would not be obvious to combine the features of these valves in the manner suggested by the Examiner.

BUSCHMANN does not cure the deficiencies of ALAZE and HALL. In particular, Appellant submits that no proper combination of ALAZE, HALL and BUSCHMANN discloses or suggests means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed, as recited in Appellant's independent claim 14.

Again, Appellant acknowledges that BUSCHMANN discloses a system for applying brake pressure when the vehicle is parked and turned off. BUSCHMANN also shows a brake system which can retain a vehicle on an inclined roadway when starting uphill and uses output signals of the sensors that are sent to the inputs E of an electronic controller 17 which evaluates the signals and furnishes braking pressure control signals through its outputs A for the actuation of the inlet and outlet valves 3, 4, 5, 6 and 7, 8, 9, 10 and the separating valve 15 and for switching on and off of the pump drive motor 11. Furthermore, anti-lock control is performed in a known fashion by way of the inlet valves 3, 4, 5, 6 and the outlet valves 7, 8, 9, 10. However, BUSCHMANN has not been shown by the Examiner to disclose means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable

core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed, as recited in Appellant's independent claim 14. Indeed, the Examiner has relied upon BUSCHMANN "only" to show typically states of valves.

Appellant submits that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner is the result of a review of Appellant's disclosure and the application of impermissible hindsight.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least independent claim 14.

**REJECTION OF INDEPENDENT CLAIM 20 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 20 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Although not specifically addressed with regard to claim 20, the Examiner appears to assert that ALAZE's valve unit 24 corresponds to Appellant's claimed

normally-open electromagnetic valve, and presumes that ALAZE's valve unit 24, although not specifically disclosed in ALAZE, performs the relief function of Appellant's electromagnetic valve. Appellant respectfully submits that the Examiner's presumption is improper, at least because ALAZE does not disclose or suggest that the valve unit 24 controls changing the value of a current applied to the electrical coil 56 of the valve unit 24, as recited in independent claim 20.

Appellant emphasizes that claim 20 is directed to a brake fluid pressure maintaining apparatus for a vehicle that includes means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core, wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force acting on the movable core, the brake fluid pressure of the wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid

pressure of the wheel brake.

As explained above, Appellant acknowledges that the electromagnetic valve of ALAZE is provided with a spring 64 having a relief function and that the relief pressure of the electromagnetic valve is determined by the spring constant of the spring 64. However, because the relief pressure of ALAZE is determined by the spring constant, the relief pressure in ALAZE is constant. The invention, in contrast, provides for an arrangement wherein the relief pressure is changeable, i.e., controlled in the claimed manner.

On page 3 of the instant Final Office Action, the Examiner acknowledges that ALAZE does not specifically describe the claimed relief function, but asserts that HALL shows that it is well known to control the total biasing forces acting on a valve and the brake pressure levels in a wheel by changing the level of a current applied to a coil. Appellant respectfully disagrees.

HALL relates to an electronic pressure relief system for traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of Hall. The disclosed pressure relief system includes a normally open valve 24, which is disposed between the isolation valve 32 and a wheel brake 20 (see Figure 1 of HALL). However, although the isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of HALL, while apparently participating in the control of the brake fluid pressure

applied to HALL's wheel brake 20, does not function like the invention. To the contrary, the brake fluid pressure in HALL is utilized to activate traction control, i.e., in the case of uncontrollable spinning when the vehicle fails to hold proper contact with the road surface. The invention, on the other hand, utilizes pressure control when a vehicle stop condition is detected and when the vehicle is on a sloping road.

Again, HALL's isolation valve 32 simply does not function in the same way as the invention. In fact, HALL fails to disclose or suggest that a current applied to the normally open valve 24 is adjusted. HALL also fails to disclose that brake fluid pressure of the wheel brake 20 is lowered to a given value under the control of any such adjustment, or that a value of the current applied to the normally open valve 24 is lowered to reduce an attracting force on a movable coil. To the contrary, there is no adjustment of the HALL normally open valve 24, at all. If there is to be any interpretation, the isolation valve 32 may be adjusted; however, the isolation valve is not configured to adjust a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to an electromagnetic valve disposed between a movable core and a fixed core. Accordingly, HALL cannot show these features of the claimed invention.

Thus, HALL does not disclose or suggest that the normally open valve 24 controls changing the value of a current applied to an electromagnetic coil of the valve 24. As such, Appellant respectfully submits that the combination of ALAZE and HALL fails to disclose or suggest the combination of features recited in at least claim 14.

Further, because the isolation valve 32 of HALL performs a function disparate from valve unit 24 of ALAZE (i.e., relieving pressure in a conduit versus relieving pressure on a wheel brake), Appellant respectfully submits that it would not be obvious to combine the features of these valves in the manner suggested by the Examiner.

BUSCHMANN does not cure the deficiencies of ALAZE and HALL. In particular, Appellant submits that no proper combination of ALAZE, HALL and BUSCHMANN discloses or suggests means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core, wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force acting on the movable core, the brake fluid pressure of the wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake, as recited in Appellant's independent claim 20.



Again, Appellant acknowledges that BUSCHMANN discloses a system for applying brake pressure when the vehicle is parked and turned off. BUSCHMANN also shows a brake system which can retain a vehicle on an inclined roadway when starting uphill and uses output signals of the sensors that are sent to the inputs E of an electronic controller 17 which evaluates the signals and furnishes braking pressure control signals through its outputs A for the actuation of the inlet and outlet valves 3, 4, 5, 6 and 7, 8, 9, 10 and the separating valve 15 and for switching on and off of the pump drive motor 11. Furthermore, anti-lock control is performed in a known fashion by way of the inlet valves 3, 4, 5, 6 and the outlet valves 7, 8, 9, 10. However, BUSCHMANN has not been shown by the Examiner to disclose means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core, wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force acting on the movable core, the brake fluid pressure of the wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open

electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake as recited in claim 20. Indeed, the Examiner has relied upon BUSCHMANN "only" to show typically states of valves.

Appellant submits that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner is the result of a review of Appellant's disclosure and the application of impermissible hindsight.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least independent claim 20.

**REJECTION OF DEPENDENT CLAIM 2 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 2 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 2 depends from claim 1 and further recites that the normally-open electromagnetic valve is closed and reduces the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduces the attracting force gradually, thereby reduces the brake fluid pressure of the wheel brake gradually due to the

variations in the attracting force.

On page 3 of the Final Office Action the Examiner asserts that "it is well known in the art to vary the forces acting on the valve" such as the valve 39 in ALAZE "by varying the spring rate of the biasing spring 40 and the level of current applied to the coil to desired criteria of the brake system." Appellant respectfully disagrees.

Appellant submits that the Examiner has not fully considered the language of claim 2. Claim 2 does not merely discuss varying the current and the spring force. Instead, claim 2 recites that the normally-open electromagnetic valve is closed and reduces the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduces the attracting force gradually, thereby reduces the brake fluid pressure of the wheel brake gradually due to the variations in the attracting force. These features have not been shown by the Examiner to be disclosed or suggested in any of the applied documents.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, Appellant notes that MPEP 2112 specifically states, in part:

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original) (Applicant's invention was directed to a biaxially oriented, flexible dilation catheter balloon (a tube which expands upon inflation) used, for example, in clearing the blood vessels of heart patients). The examiner

applied a U.S. patent to Schjeldahl which disclosed injection molding a tubular preform and then injecting air into the preform to expand it against a mold (blow molding). The reference did not directly state that the end product balloon was biaxially oriented. It did disclose that the balloon was "formed from a thin flexible inelastic, high tensile strength, biaxially oriented synthetic plastic material." *Id.* at 1462 (emphasis in original). The examiner argued that Schjeldahl's balloon was inherently biaxially oriented. The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency.).

The Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant

submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 2.

**REJECTION OF DEPENDENT CLAIM 3 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 3 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 3 depends from claims 1 and 2 further recites the normally-open electromagnetic valve decreases the attracting force due to gradually reducing the value of the current to be applied to the electromagnetic coil according to a previously set function.

On page 3 of the Final Office Action the Examiner asserts that “it is well known in the art to vary the forces acting on the valve” such as the valve 39 in ALAZE “by varying the spring rate of the biasing spring 40 and the level of current applied to the coil to desired criteria of the brake system.” Appellant respectfully disagrees.

Appellant submits that the Examiner has not fully considered the language of claim 3. Claim 3 does not merely discuss varying the current and the spring force. Instead, claim 3 recites that the normally-open electromagnetic valve decreases the attracting force due to gradually reducing the value of the current to be applied to the electromagnetic coil according to a previously set function. These features have not

been shown by the Examiner to be disclosed or suggested in any of the applied documents.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that “[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known.” Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner’s assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 3.

**REJECTION OF DEPENDENT CLAIM 8 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 8 depends from claim 1 and further recites a housing formed as a stepped cylindrical shape including a small-diameter portion and a large-diameter portion and a guide tube which is connected and fixed to an upper end of the fixed core to guide the movable core with respect to the fixed core, wherein the fixed core is disposed on an upper end of the small-diameter portion, the movable core is contacted with an upper end of a valve shaft to press and move the valve shaft in a valve closing direction, the movable core is formed in a cylindrical shape and is disposed so as to be contactable with the upper end of the valve shaft, and when the normally-open electromagnetic valve is not in operation, due to a pressure energizing force of a valve-opening energizing spring mounted in a valve chamber, the movable core is energized through the valve shaft in the direction where it is moved apart from the fixed core.

On page 4 of the Final Office Action the Examiner asserts that ALAZE teaches the features of claim 8. Appellant respectfully disagrees.

Appellant submits that the Examiner has not fully considered the language of claim 8. Claim 8 recites a movable core that is caused to move when the valve is energized and that contacts an upper end of a valve shaft. ALAZE, in contrast, places

a spring 64 between portion 61 or the movable core 59 and a disk 63 that contacts the upper end of a valve shaft 38. Thus, when the valve is energized, the movable core 59 moves but does not contact the upper end of a valve shaft 38.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 8.

**REJECTION OF DEPENDENT CLAIM 15 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 15 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 15 depends from claim 14 and further recites that the means for reducing a pressure is provided gradually such that the attracting force is gradually reduced.

On page 4 of the Final Office Action the Examiner asserts that ALAZE teaches the features of claim 15. Appellant respectfully disagrees.

Appellant submits that the Examiner has not fully considered the language of claim 15. Claim 15 recites that the means for reducing a pressure is provided gradually such that the attracting force is gradually reduced. Although the Examiner has alleged that this feature is disclosed in ALAZE, the Examiner has failed to point to any language which even remotely discusses this feature.



Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 15.

**REJECTION OF DEPENDENT CLAIM 16 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 16 under 35 U.S.C. § 103(a) as being unpatentable over

ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 16 depends from claim 14 and further recites that the means for reducing a pressure includes a current applied to the normally-open electromagnetic valve to close the normally-open electromagnetic valve and reduce the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduce the attracting force gradually and thus reduce the brake fluid pressure of the wheel brake gradually due to variations in the attracting force.

On page 4 of the Final Office Action the Examiner asserts that ALAZE teaches the features of claim 16. Appellant respectfully disagrees. Although the Examiner has alleged that this feature is disclosed in ALAZE, the Examiner has failed to point to any language which even remotely discusses this feature.

Appellant also submits that the Examiner has not fully considered the language of claim 16. Claim 16 recites that the means for reducing a pressure functions by decreasing the value of the current to be applied to the electromagnetic coil gradually to reduce the attracting force gradually and thus reduce the brake fluid pressure of the wheel brake gradually due to variations in the attracting force.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated

that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 16.

**REJECTION OF DEPENDENT CLAIM 17 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 17 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be

remanded to the Examiner.

Claim 17 depends from claim 14 and further recites a means for increasing the attracting force between the fixed core and the movable core

On page 4 of the Final Office Action the Examiner asserts that ALAZE teaches the features of claim 17. Appellant respectfully disagrees. Although the Examiner has alleged that this feature is disclosed in ALAZE, the Examiner has failed to point to any language which even remotely discusses this feature.

Appellant also submits that the Examiner has not fully considered the language of claim 17. Claim 17 recites a means for increasing the attracting force between the fixed core and the movable core. Although the Examiner has alleged that this feature is disclosed in ALAZE, the Examiner has failed to point to any language which even remote discusses this feature.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common

knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 17.

**REJECTION OF DEPENDENT CLAIM 19 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 19 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 19 depends from claim 14 and further recites a means for preventing a pressure difference from being generated between an interior of the housing and guide tube due to movement of the movable core. The recited means includes flow grooves 50 and 51.

On page 4 of the Final Office Action the Examiner asserts that ALAZE teaches the features of claim 19. Appellant respectfully disagrees. The Examiner has

failed to point to any language which even remote discusses the recited feature.

Appellant submits that the Examiner has not fully considered the language of claim 19. Claim 19 further recites a means for preventing a pressure difference from being generated between an interior of the housing and guide tube due to movement of the movable core and the recited means includes flow grooves 50 and 51 as discussed on page 29, lines 4-15 of the instant specification. ALAZE, in contrast, does not utilize this configuration for the member 38 and the movable core 59.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 19.

**REJECTION OF DEPENDENT CLAIM 22 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 22 under 35 U.S.C. § 103(a) as being unpatentable over ALAZE in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 22 depends from claim 1 and recites the normally-open electromagnetic valve comprises a single spring which is disposed between a tapered valve seat and an upper end side of a cylindrical-shaped valve seat member.

On page 4 of the Final Office Action the Examiner asserts that it would have been obvious to modify ALAZE to teach the feature of claim 22. Appellant

respectfully disagrees. The Examiner has failed to point to any language which even remote discusses the recited feature.

Claim 22 specifically recites the normally-open electromagnetic valve comprises a single spring which is disposed between a tapered valve seat and an upper end side of a cylindrical-shaped valve seat member. ALAZE, in contrast, shows a valve with two springs 40 and 64 (see Fig. 2). Additionally, the Examiner has failed to point to any language which even remote discusses the recited feature.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 22.

**Claims 1-3, 8, 14-17, 19, 20 and 22 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 to HALL and U.S. Patent No. 6,086,515 to BUSCHMANN et al.**

**REJECTION OF INDEPENDENT CLAIM 1 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

In the Office Action, the Examiner apparently believes that JP 2001-225731 teaches the recited normally-open electromagnetic valve, and presumes that the valve, although not specifically disclosed in JP 2001-225731, performs the relief function of

Appellant's electromagnetic valve. Appellant respectfully submits that the Examiner's presumption is improper, at least because JP 2001-225731 does not disclose or suggest that the valve controls changing the value of a current applied to the electrical coil 48 of the valve, as recited in independent claim 1.

Appellant emphasizes that claim 1 is directed to a brake fluid pressure maintaining apparatus for a vehicle which includes, inter alia, a master cylinder that generates a brake fluid pressure when a driver steps on a brake pedal, a check valve interposed between the master cylinder and a wheel brake, and a normally-open electromagnetic valve which is closable to temporarily maintain the brake fluid pressure of the wheel brake even after release of stepping on the brake pedal. Claim 1, in particular, recites that the normally-open electromagnetic valve is controllable as follows:

- when it is detected that the vehicle is stopped, the electromagnetic coil is energized and the normally-open electromagnetic valve is closed;
- by changing the value of the current to be applied to the electromagnetic coil, an attracting force for closing the normally-open electromagnetic valve is changed; and
- by setting the attracting force at a given value, the brake fluid pressure to be maintained on the wheel brake side is set.

Appellant acknowledges that the electromagnetic valve of JP 2001-225731 is provided with a spring 54 having a relief function and that the relief pressure of the electromagnetic valve is determined by the spring constant of the spring 54. However, because the relief pressure of JP 2001-225731 is determined by the spring constant, the relief pressure in JP 2001-225731 is constant. The invention, in contrast, provides



for an arrangement wherein the relief pressure is changeable, i.e., controlled in the claimed manner.

Appellant emphasizes that JP 2001-225731 is directed to a brake fluid pressure control device with a normally open solenoid valve between a master cylinder and a wheel brake for allowing the closing of the valve when temporarily holding a brake fluid pressure of the wheel brake after canceling a braking operation. To accomplish these features, JP 2001-225731 discloses in the Abstract that

a valve chest 34 is communicated with a first liquid pressure passages 21, 22 and a valve hole 31 is communicated with a second liquid pressure passages 31, 32 and a relief spring is provided between the moveable core 45 and a valve element 35 for providing a spring force for pushing the valve element 35 against a valve seat in the state of seating the valve element 35 to the valve seat 32.

As is apparent, JP 2001-225731 fails to disclose adjusting a brake fluid pressure in a wheel brake on an ascending or descending slope by adjusting a current, nor does JP 2001-225731 show controlling changing the value of a current and setting the attracting force at a given value.

On page 5 of the instant Final Office Action, the Examiner apparently acknowledges that JP 2001-225731 does not specifically describe the claimed relief function, but asserts that HALL shows that it is well known to control the total biasing forces acting on a valve and the brake pressure levels in a wheel by changing the level of a current applied to a coil. Appellant respectfully disagrees.

As explained above, HALL relates to an electronic pressure relief system for

traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of Hall. The disclosed pressure relief system includes a normally open valve 24, which is disposed between the isolation valve 32 and a wheel brake 20 (see Figure 1 of HALL). However, although the isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of HALL, while apparently participating in the control of the brake fluid pressure applied to HALL's wheel brake 20, does not function like the invention. To the contrary, the brake fluid pressure in HALL is utilized to activate traction control, i.e., in the case of uncontrollable spinning when the vehicle fails to hold proper contact with the road surface. The invention, on the other hand, utilizes pressure control when a vehicle stop condition is detected and when the vehicle is on a sloping road.

Thus, HALL does not disclose or suggest that the normally open valve 24 controls changing the value of a current applied to an electromagnetic coil of the valve 24. As such, Appellant respectfully submits that the combination of JP 2001-225731 and HALL fails to disclose or suggest the combination of features recited in at least claim 1. Further, because the isolation valve 32 of HALL performs a function disparate from valve unit of JP 2001-225731 (i.e., relieving pressure in a conduit versus relieving pressure on a wheel brake), Appellant respectfully submits that it would not be obvious to combine the features of these valves in the manner suggested by the Examiner.

BUSCHMANN does not cure the deficiencies of JP 2001-225731 and HALL. In particular, Appellant submits that no proper combination of JP 2001-225731, HALL and BUSCHMANN discloses or suggests a normally-open electromagnetic valve which is configured to control changing the value of a current to be applied to an electromagnetic coil to change an attracting force for closing the electromagnetic valve, and setting the attracting force at a given value to set brake fluid pressure to be maintained on a wheel brake side, as recited in Appellant's independent claim 1.

Appellant acknowledges that BUSCHMANN discloses a system for applying brake pressure when the vehicle is parked and turned off. BUSCHMANN also shows a brake system which can retain a vehicle on an inclined roadway when starting uphill and uses output signals of the sensors that are sent to the inputs E of an electronic controller 17 which evaluates the signals and furnishes braking pressure control signals through its outputs A for the actuation of the inlet and outlet valves 3, 4, 5, 6 and 7, 8, 9, 10 and the separating valve 15 and for switching on and off of the pump drive motor 11. Furthermore, anti-lock control is performed in a known fashion by way of the inlet valves 3, 4, 5, 6 and the outlet valves 7, 8, 9, 10. However, BUSCHMANN has not been shown by the Examiner to disclose a normally-open electromagnetic valve which is configured to control changing the value of a current to be applied to an electromagnetic coil to change an attracting force for closing the electromagnetic valve, and setting the attracting force at a given value to set brake fluid pressure to be maintained on a wheel brake side, as recited in Appellant's independent claim 1.

Indeed, the Examiner has relied upon BUSCHMANN “only” to show typically states of valves.

Although the Examiner has concluded that it would have been obvious to combine the teachings of JP 2001-225731, HALL and BUSCHMANN, the Examiner neglects to set forth any response to Appellant’s assertion that there is no proper basis for combining the teachings of the applied documents. In establishing a *prima facie* case of obviousness under 35 U.S.C. § 103, it is incumbent upon the Examiner to provide a reason *why* one of ordinary skill in the art would have found it obvious to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See *Ex parte Clapp*, 227 USPQ 972 (B.P.A.I. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from Appellant’s disclosure. See, for example, *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). As noted above, each of the applied documents is silent with regard to a number of recited features and each of the documents relates to different devices that function in different manners. Moreover, none of the documents teaches or suggests modifying the structure or operation of JP 2001-225731 in the manner asserted by the Examiner.

Because the art of record fails to provide any reasonable explanation why one ordinarily skilled in the art would utilize such an arrangement, and/or fails to disclose or suggest the problems that such an arrangement would address, Appellant submits that the

art of record fails to provide the requisite motivation or rationale as to *why* one ordinarily skilled in the art would modify JP 2001-225731 to include features of any of the secondary references in the manner asserted by the Examiner. That is, Appellant submits that because the Examiner has not set forth any basis or reason found in the art of record for combining these documents, the instant rejection has no basis in the art of record, such that the rejection is improper and should be withdrawn.

As noted above, rejections based on 35 U.S.C. § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The Examiner has the initial duty of supplying the factual basis for the rejection and may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967). As stated in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984):

[t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

Appellant submits that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner is the result of a review of Appellant's disclosure and the application of impermissible hindsight.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant

submits that no proper combination of these documents renders unpatentable the combination of features recited in at least independent claim 1.

**REJECTION OF INDEPENDENT CLAIM 14 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 14 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Again, the Examiner asserts that JP 2001-225731 valve unit corresponds to Appellant's claimed normally-open electromagnetic valve, and presumes that the valve unit of JP 2001-225731, although not specifically disclosed in JP 2001-225731, performs the relief function of Appellant's electromagnetic valve. Appellant respectfully submits that the Examiner's presumption is improper, at least because JP 2001-225731 does not disclose or suggest that the valve unit controls changing the value of a current applied to the electrical coil 48 of the valve unit, as recited in independent claim 14.

Appellant emphasizes that claim 14 is directed to a brake fluid pressure maintaining apparatus for a vehicle that includes means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic

valve is energized and the normally-open electromagnetic valve is closed.

As explained above, Appellant acknowledges that the electromagnetic valve of JP 2001-225731 is provided with a spring 54 having a relief function and that the relief pressure of the electromagnetic valve is determined by the spring constant of the spring 54. However, because the relief pressure of JP 2001-225731 is determined by the spring constant, the relief pressure in JP 2001-225731 is constant. The invention, in contrast, provides for an arrangement wherein the relief pressure is changeable, i.e., controlled in the claimed manner.

Appellant emphasizes that JP 2001-225731 is directed to a brake fluid pressure control device with a normally open solenoid valve between a master cylinder and a wheel brake for allowing the closing of the valve when temporarily holding a brake fluid pressure of the wheel brake after canceling a braking operation. To accomplish these features, JP 2001-225731 discloses in the Abstract that

a valve chest 34 is communicated with a first liquid pressure passages 21, 22 and a valve hole 31 is communicated with a second liquid pressure passages 31, 32 and a relief spring is provided between the moveable core 45 and a valve element 35 for providing a spring force for pushing the valve element 35 against a valve seat in the state of seating the valve element 35 to the valve seat 32.

As is apparent, JP 2001-225731 fails to disclose adjusting a brake fluid pressure in a wheel brake on an ascending or descending slope by adjusting a current, nor does JP 2001-225731 show controlling changing the value of a current and setting the attracting force at a given value.

On page 5 of the instant Final Office Action, the Examiner acknowledges that JP 2001-225731 does not specifically describe the claimed relief function, but asserts that HALL shows that it is well known to control the total biasing forces acting on a valve and the brake pressure levels in a wheel by changing the level of a current applied to a coil. Appellant respectfully disagrees.

HALL relates to an electronic pressure relief system for traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of Hall. The disclosed pressure relief system includes a normally open valve 24, which is disposed between the isolation valve 32 and a wheel brake 20 (see Figure 1 of HALL). However, although the isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of HALL, while apparently participating in the control of the brake fluid pressure applied to HALL's wheel brake 20, does not function like the invention. To the contrary, the brake fluid pressure in HALL is utilized to activate traction control, i.e., in the case of uncontrollable spinning when the vehicle fails to hold proper contact with the road surface. The invention, on the other hand, utilizes pressure control when a vehicle stop condition is detected and when the vehicle is on a sloping road.

Thus, HALL does not disclose or suggest that the normally open valve 24 controls changing the value of a current applied to an electromagnetic coil of the valve 24. As such, Appellant respectfully submits that the combination of JP 2001-225731



and HALL fails to disclose or suggest the combination of features recited in at least claim 14. Further, because the isolation valve 32 of HALL performs a function disparate from valve unit of JP 2001-225731 (i.e., relieving pressure in a conduit versus relieving pressure on a wheel brake), Appellant respectfully submits that it would not be obvious to combine the features of these valves in the manner suggested by the Examiner.

BUSCHMANN does not cure the deficiencies of JP 2001-225731 and HALL. In particular, Appellant submits that no proper combination of JP 2001-225731, HALL and BUSCHMANN discloses or suggests means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed, as recited in Appellant's independent claim 14.

Again, Appellant acknowledges that BUSCHMANN discloses a system for applying brake pressure when the vehicle is parked and turned off. BUSCHMANN also shows a brake system which can retain a vehicle on an inclined roadway when starting uphill and uses output signals of the sensors that are sent to the inputs E of an electronic controller 17 which evaluates the signals and furnishes braking pressure

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control signals through its outputs A for the actuation of the inlet and outlet valves 3, 4, 5, 6 and 7, 8, 9, 10 and the separating valve 15 and for switching on and off of the pump drive motor 11. Furthermore, anti-lock control is performed in a known fashion by way of the inlet valves 3, 4, 5, 6 and the outlet valves 7, 8, 9, 10. However, BUSCHMANN has not been shown by the Examiner to disclose means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed, as recited in Appellant's independent claim 14. Indeed, the Examiner has relied upon BUSCHMANN "only" to show typically states of valves.

Appellant submits that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner is the result of a review of Appellant's disclosure and the application of impermissible hindsight.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least independent claim 14.

**REJECTION OF INDEPENDENT CLAIM 20 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 20 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Again, the Examiner asserts that the valve unit of JP 2001-225731 corresponds to Appellant's claimed normally-open electromagnetic valve, and presumes that the valve unit of JP 2001-225731, although not specifically disclosed in JP 2001-225731, performs the relief function of Appellant's electromagnetic valve. Appellant respectfully submits that the Examiner's presumption is improper, at least because JP 2001-225731 does not disclose or suggest that the valve unit controls changing the value of a current applied to the electrical coil 48 of the valve unit, as recited in independent claim 20.

Appellant emphasizes that claim 20 is directed to a brake fluid pressure maintaining apparatus for a vehicle that includes means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core, wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force acting on the movable core, the brake fluid pressure of the

wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake.

As explained above, Appellant acknowledges that the electromagnetic valve of JP 2001-225731 is provided with a spring 54 having a relief function and that the relief pressure of the electromagnetic valve is determined by the spring constant of the spring 54. However, because the relief pressure of JP 2001-225731 is determined by the spring constant, the relief pressure in JP 2001-225731 is constant. The invention, in contrast, provides for an arrangement wherein the relief pressure is changeable, i.e., controlled in the claimed manner.

Appellant emphasizes that JP 2001-225731 is directed to a brake fluid pressure control device with a normally open solenoid valve between a master cylinder and a wheel brake for allowing the closing of the valve when temporarily holding a brake fluid pressure of the wheel brake after canceling a braking operation. To accomplish these features, JP 2001-225731 discloses in the Abstract that

a valve chest 34 is communicated with a first liquid pressure passages 21, 22 and a valve hole 31 is communicated with a second liquid pressure passages 31, 32 and a relief spring is provided between the moveable

core 45 and a valve element 35 for providing a spring force for pushing the valve element 35 against a valve seat in the state of seating the valve element 35 to the valve seat 32.

As is apparent, JP 2001-225731 fails to disclose adjusting a brake fluid pressure in a wheel brake on an ascending or descending slope by adjusting a current, nor does JP 2001-225731 show controlling changing the value of a current and setting the attracting force at a given value.

On page 5 of the instant Final Office Action, the Examiner acknowledges that JP 2001-225731 does not specifically describe the claimed relief function, but asserts that HALL shows that it is well known to control the total biasing forces acting on a valve and the brake pressure levels in a wheel by changing the level of a current applied to a coil. Appellant respectfully disagrees.

HALL relates to an electronic pressure relief system for traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of Hall. The disclosed pressure relief system includes a normally open valve 24, which is disposed between the isolation valve 32 and a wheel brake 20 (see Figure 1 of HALL). However, although the isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of HALL, while apparently participating in the control of the brake fluid pressure applied to HALL's wheel brake 20, does not function like the invention. To the contrary, the brake fluid pressure in HALL is utilized to activate traction control, i.e., in the case of

uncontrollable spinning when the vehicle fails to hold proper contact with the road surface. The invention, on the other hand, utilizes pressure control when a vehicle stop condition is detected and when the vehicle is on a sloping road.

Thus, HALL does not disclose or suggest that the normally open valve 24 controls changing the value of a current applied to an electromagnetic coil of the valve 24. As such, Appellant respectfully submits that the combination of JP 2001-225731 and HALL fails to disclose or suggest the combination of features recited in at least claim 20. Further, because the isolation valve 32 of HALL performs a function disparate from valve unit of JP 2001-225731 (i.e., relieving pressure in a conduit versus relieving pressure on a wheel brake), Appellant respectfully submits that it would not be obvious to combine the features of these valves in the manner suggested by the Examiner.

BUSCHMANN does not cure the deficiencies of JP 2001-225731 and HALL. In particular, Appellant submits that no proper combination of JP 2001-225731, HALL and BUSCHMANN discloses or suggests means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core, wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force

acting on the movable core, the brake fluid pressure of the wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake, as recited in Appellant's independent claim 20.

Again, Appellant acknowledges that BUSCHMANN discloses a system for applying brake pressure when the vehicle is parked and turned off. BUSCHMANN also shows a brake system which can retain a vehicle on an inclined roadway when starting uphill and uses output signals of the sensors that are sent to the inputs E of an electronic controller 17 which evaluates the signals and furnishes braking pressure control signals through its outputs A for the actuation of the inlet and outlet valves 3, 4, 5, 6 and 7, 8, 9, 10 and the separating valve 15 and for switching on and off of the pump drive motor 11. Furthermore, anti-lock control is performed in a known fashion by way of the inlet valves 3, 4, 5, 6 and the outlet valves 7, 8, 9, 10. However, BUSCHMANN has not been shown by the Examiner to disclose means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an

attracting force between the movable core and the fixed core, wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force acting on the movable core, the brake fluid pressure of the wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake as recited in claim 20. Indeed, the Examiner has relied upon BUSCHMANN "only" to show typically states of valves.

Appellant submits that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner is the result of a review of Appellant's disclosure and the application of impermissible hindsight.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least independent claim 20.

**REJECTION OF DEPENDENT CLAIM 2 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 2 under 35 U.S.C. § 103(a) as being unpatentable over JP



2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 2 depends from claim 1 and further recites that the normally-open electromagnetic valve is closed and reduces the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduces the attracting force gradually, thereby reduces the brake fluid pressure of the wheel brake gradually due to the variations in the attracting force.

Appellant submits that the Examiner has not fully considered the language of claim 2. Claim 2 recites that the normally-open electromagnetic valve is closed and reduces the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduces the attracting force gradually, thereby reduces the brake fluid pressure of the wheel brake gradually due to the variations in the attracting force. These features have not been shown by the Examiner to be disclosed or suggested in any of the applied documents.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, Appellant notes that MPEP 2112 specifically states, in part:

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original) (Applicant's invention was directed to a biaxially oriented, flexible dilation catheter balloon (a tube which expands upon inflation) used, for example, in clearing the blood vessels of heart patients). The examiner applied a U.S. patent to Schjeldahl which disclosed injection molding a tubular preform and then injecting air into the preform to expand it against a mold (blow molding). The reference did not directly state that the end product balloon was biaxially oriented. It did disclose that the balloon was "formed from a thin flexible inelastic, high tensile strength, biaxially oriented synthetic plastic material." *Id.* at 1462 (emphasis in original). The examiner argued that Schjeldahl's balloon was inherently biaxially oriented. The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency.).

The Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the

Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 2.

**REJECTION OF DEPENDENT CLAIM 3 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 3 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 3 depends from claims 1 and 2 and further recites that the normally-open electromagnetic valve decreases the attracting force due to gradually reducing the value of the current to be applied to the electromagnetic coil according to a previously set function.

Appellant submits that the Examiner has not fully considered the language of claim 3. Claim 3 recites that the normally-open electromagnetic valve decreases the attracting force due to gradually reducing the value of the current to be applied to the electromagnetic coil according to a previously set function. These features have not been shown by the Examiner to be disclosed or suggested in any of the applied documents.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 3.

**REJECTION OF DEPENDENT CLAIM 8 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over JP

2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 8 depends from claim 1 and further recites a housing formed as a stepped cylindrical shape including a small-diameter portion and a large-diameter portion and a guide tube which is connected and fixed to an upper end of the fixed core to guide the movable core with respect to the fixed core, wherein the fixed core is disposed on an upper end of the small-diameter portion, the movable core is contacted with an upper end of a valve shaft to press and move the valve shaft in a valve closing direction, the movable core is formed in a cylindrical shape and is disposed so as to be contactable with the upper end of the valve shaft, and when the normally-open electromagnetic valve is not in operation, due to a pressure energizing force of a valve-opening energizing spring mounted in a valve chamber, the movable core is energized through the valve shaft in the direction where it is moved apart from the fixed core.

Appellant submits that the Examiner has not fully considered the language of claim 8. Claim 8 recites a movable core that is caused to move when the valve is energized and that contacts an upper end of a valve shaft. JP 2001-225731, in contrast, places a spring 54 between portion 53 or the movable core 45 and another portion 52 that contacts the upper end of a valve shaft 33. Thus, when the valve is energized, the movable core 45 moves but does not contact the upper end of a valve shaft 33.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 8.

**REJECTION OF DEPENDENT CLAIM 15 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 15 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 15 depends from claim 14 and further recites that the means for reducing a pressure is provided gradually such that the attracting force is gradually reduced.

Appellant submits that the Examiner has not fully considered the language of claim 15. Claim 15 recites that the means for reducing a pressure is provided gradually such that the attracting force is gradually reduced. Also, although the Examiner has alleged that this feature is disclosed in JP 2001-225731, the Examiner has failed to point to any language which even remote discusses this feature.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that “[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known.” Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner’s assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 15.

**REJECTION OF DEPENDENT CLAIM 16 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 16 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 16 depends from claim 14 and further recites that the means for reducing a pressure includes a current applied to the normally-open electromagnetic valve to

close the normally-open electromagnetic valve and reduce the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduce the attracting force gradually and thus reduce the brake fluid pressure of the wheel brake gradually due to variations in the attracting force.

Appellant submits that the Examiner has not fully considered the language of claim 16. Claim 16 recites that the means for reducing a pressure functions by decreasing the value of the current to be applied to the electromagnetic coil gradually to reduce the attracting force gradually and thus reduce the brake fluid pressure of the wheel brake gradually due to variations in the attracting force. Also, although the Examiner has alleged that this feature is disclosed in JP 2001-225731, the Examiner has failed to point to any language which even remote discusses this feature.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common



knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 16.

**REJECTION OF DEPENDENT CLAIM 17 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 17 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 17 depends from claim 14 and further recites a means for increasing the attracting force between the fixed core and the movable core

Appellant submits that the Examiner has not fully considered the language of claim 17. Claim 17 recites a means for increasing the attracting force between the fixed core and the movable core. Also, although the Examiner has alleged that this feature is

disclosed in JP 2001-225731, the Examiner has failed to point to any language which even remotely discusses this feature.

Furthermore, to the extent that the Examiner is basing the instant rejection on an argument of inherency consistent with MPEP 2112, the Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Additionally, to the extent that the Examiner relies upon official notice in support of the instant rejection, Appellant reminds the Examiner that MPEP 2144.03 specifically explains that "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known." Appellant submits that the facts asserted by the Examiner, in view of the claimed invention, are not well known. The Examiner has also failed to provide any such documentary evidence. Accordingly, Appellant respectfully requests that the Examiner produce documentary evidence to support the Examiner's assertions to the extent that the Examiner is relying on official notice.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 17.

**REJECTION OF DEPENDENT CLAIM 19 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 19 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 19 depends from claim 14 and further recites a means for preventing a pressure difference from being generated between an interior of the housing and guide tube due to movement of the movable core. The recited means includes flow grooves 50 and 51.

Appellant submits that the Examiner has not fully considered the language of claim 19. Claim 19 recites a means for preventing a pressure difference from being generated between an interior of the housing and guide tube due to movement of the movable core and the recited means includes flow grooves 50 and 51 as discussed on page 29, lines 4-15 of the instant specification. JP 2001-225731, in contrast, does not utilize this configuration for the member 25 and the movable core 45. Additionally, the Examiner has failed to point to any language which even remote discusses the recited feature.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 19.

**REJECTION OF DEPENDENT CLAIM 22 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 22 under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-225731 in view of WO 95/19282 and BUSCHMANN is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Claim 22 depends from claim 1 and recites the normally-open electromagnetic valve comprises a single spring which is disposed between a tapered valve seat and an upper end side of a cylindrical-shaped valve seat member. JP 2001-225731, in contrast, shows a valve with two springs 54 and 36 (see Fig. 3). Additionally, the Examiner has failed to point to any language which even remote discusses the recited feature.

Because the combination of the above-noted documents fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellant submits that no proper combination of these documents renders unpatentable the combination of features recited in at least dependent claim 22.

**(VIII) CONCLUSION**

Each of claims 1-23 are patentable under 35 U.S.C. § 103(a). Specifically, the applied art of record, even if properly combined, fails to disclose, or even suggest, the unique combination of features recited in Appellant's claims 1-23. Accordingly, Appellant respectfully requests that the Board reverse the decision of the Examiner to reject claims 1-23 under 35 U.S.C. § 103(a) and remand the application to the Examiner for withdrawal of the above-noted rejections.

Respectfully submitted,  
Takayuki WAGU et al.

A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', with a long horizontal line extending to the right.

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Attachments:      Claims Appendix  
                         Evidence Appendix  
                         Related Proceedings Appendix

CLAIMS ON APPEAL

1. A brake fluid pressure maintaining apparatus for a vehicle, comprising:

a master cylinder for generating a brake fluid pressure when a driver steps on a brake pedal;

a check valve interposed between the master cylinder and a wheel brake operatable by the brake fluid pressure from the master cylinder for allowing the flow of the brake fluid pressure from the master cylinder to the wheel brake in a braking operation; and,

a normally-open electromagnetic valve closable in order to temporarily maintain the brake fluid pressure of the wheel brake even after release of stepping on the brake pedal,

wherein the normally-open electromagnetic valve includes an electromagnetic coil for generating an electromagnetic force when a current is applied thereto, a fixed core to be immovably disposed, and a movable core to be attracted to the fixed core, and

in a brake fluid pressure maintaining state, the normally-open electromagnetic valve is closed due to the electromagnetic force to thereby prevent the return of the brake fluid pressure from the wheel brake to the master cylinder and,

in a brake fluid pressure no-maintaining state, the normally-open electromagnetic valve is always opened to thereby allow the flow of the brake fluid pressure from the master cylinder to the wheel brake or the return of the brake fluid

pressure from the wheel brake to the master cylinder, and

wherein the normally-open electromagnetic valve is controllable as follows:

when it is detected that the vehicle is stopped, the electromagnetic coil is energized and the normally-open electromagnetic valve is closed;

by changing the value of the current to be applied to the electromagnetic coil, an attracting force for closing the normally-open electromagnetic valve is changed; and

by setting the attracting force at a given value, the brake fluid pressure to be maintained on the wheel brake side is set;

wherein, when the normally-open electromagnetic valve is closed due to application of a current to the electromagnetic coil, in case where the brake fluid pressure of the wheel brake is higher than the attracting force of the given value, the normally-open electromagnetic valve is opened against the attracting force to thereby reduce the brake fluid pressure of the wheel brake down to the given value.

2. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 1, wherein the normally-open electromagnetic valve is closed and reduces the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduces the attracting force gradually, thereby reduces the brake fluid pressure of the

wheel brake gradually due to the variations in the attracting force.

3. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 2, wherein the normally-open electromagnetic valve decreases the attracting force due to gradually reducing the value of the current to be applied to the electromagnetic coil according to a previously set function.

4. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 1, wherein the normally-open electromagnetic valve is structured such that a recessed portion having a ring-shaped wall surface is formed in one of the mutually attracting surfaces of the fixed core and movable core, a projecting portion to be inserted into the recessed portion is formed in the other, the projecting portion is disposed so as to face the ring-shaped wall surface and, when the movable core is attracted by the fixed core, the projection portion is inserted into the recessed portion and the ring-shaped wall surface is situated on the outer periphery of the projection portion.

5. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 4, wherein the check valve is a cup seal which is disposed on the outer periphery of the normally-open electromagnetic valve not only to separate the master cylinder side and wheel brake side from each other but also to allow only the flow of the brake fluid pressure from the master cylinder to the wheel brake but prevent the return of the brake



fluid pressure from the wheel brake to the master cylinder.

6. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 5, further comprising:

a housing formed as a stepped cylindrical shape including a small-diameter portion and a large-diameter portion, at least a portion of the housing comprising the fixed core;

a cylindrical-shaped valve seat member mounted on and fixed to an interior of a lower end side of the large-diameter portion;

a tapered valve seat disposed on the upper end side of the cylindrical-shaped valve seat member;

a valve hole formed in the axial direction thereof within the tapered valve seat; and

a valve shaft slidable in an axial direction and in contact with the movable core;

a valve chamber formed between the valve shaft and the valve seat member so as to face the valve seat;

an inverted-conical-shaped valve body seated on the tapered valve seat; and

a valve-opening energizing spring energizing the valve shaft in an opposite direction to the valve seat member,

wherein, normally, the valve body is separated from the valve seat and the valve hole is opened due to the pressure energizing force of the valve-opening energizing

spring.

7. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 6, further comprising:

a master-side fluid pressure passage communicating with the master cylinder, one fluid pressure chamber;  
a wheel-side fluid pressure passage communicating with the wheel brake; and  
a plurality of tube-shaped communication passages in the large-diameter portion allowing the one fluid pressure chamber and the valve chamber to communicate with each other,

wherein the master-side fluid pressure passage and valve chamber communicate with each other.

8. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 1, further comprising:

a housing formed as a stepped cylindrical shape including a small-diameter portion and a large-diameter portion; and  
a guide tube which is connected and fixed to an upper end of the fixed core to guide the movable core with respect to the fixed core, wherein

the fixed core is disposed on an upper end of the small-diameter portion,  
the movable core is contacted with an upper end of a valve shaft to press

and move the valve shaft in a valve closing direction,

the movable core is formed in a cylindrical shape and is disposed so as to be contactable with the upper end of the valve shaft, and

when the normally-open electromagnetic valve is not in operation, due to a pressure energizing force of a valve-opening energizing spring mounted in a valve chamber, the movable core is energized through the valve shaft in the direction where it is moved apart from the fixed core.

9. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 1, further comprising recessed one or more flow grooves in an axial direction in each of an outer peripheral surface of the movable core and a valve shaft contactable with the movable core, wherein

the one or more grooves allow the brake fluid to flow freely between a housing and guide tube housing the movable core,

the one or more grooves prevent a generation of the pressure difference between an interior of the housing and a guide tube housing the movable core, thereby permitting the smooth movement of the movable core and a valve shaft moving with the movable core.

10. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 9, further comprising a recessed portion forming a ring shaped surface in the

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fixed core and a cylindrical ring shaped projecting surface in the movable core which is disposed to face the recessed portion of the fixed core, wherein in a state where the fixed core and movable core are most distant from each other with no attracting force applied therebetween, a leading end of the cylindrical ring shaped projecting surface is slightly inserted into the recessed portion.

11. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 6, wherein:

when the brake fluid pressure is not maintained, the normally-open electromagnetic valve is deenergized and no attracting force is generated between the fixed core and the movable core; and

due to the pressure energizing force of the valve opening energizing spring mounted in contact with the valve shaft and within the valve chamber the movable core is pressed and energized in a parting direction from the fixed core through the valve shaft and, at a same time, the valve body is separated from the valve seat to thereby open the valve hole, so that the normally-open electromagnetic valve is held open.

12. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 6, wherein:

when the brake fluid pressure is maintained, in case where a current is applied, there is generated an attracting force which moves the movable core in an approaching

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direction to the fixed core; and

the attracting force is set so as to exceed the energizing force of the valve opening energizing spring which is used to press and energize the valve body in the valve opening direction.

13. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 12, wherein:

where the movable core is moved in the approaching direction to the fixed core due to the attracting force against the energizing force of the valve opening energizing spring, the valve body is seated on the valve seat through the valve shaft to thereby close the valve hole, so that the normally-open electromagnetic valve is closed.

14. A brake fluid pressure maintaining apparatus for a vehicle, comprising:  
a master cylinder;  
a check valve interposed between the master cylinder and a wheel brake; and  
means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value,

wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the

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normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed.

15. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 14, wherein the means for reducing a pressure is provided gradually such that the attracting force is gradually reduced.

16. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 14, wherein the means for reducing a pressure includes a current applied to the normally-open electromagnetic valve to close the normally-open electromagnetic valve and reduce the brake fluid pressure of the wheel brake down to the given value and, after then, due to decreasing the value of the current to be applied to the electromagnetic coil gradually, reduce the attracting force gradually and thus reduce the brake fluid pressure of the wheel brake gradually due to variations in the attracting force.

17. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 14, further comprising a means for increasing the attracting force between the fixed core and the movable core.

18. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 17, wherein the increasing means includes a projection fitting within a recess of the movable and the fixed core.

19. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 14, further comprising a means for preventing a pressure difference from being generated between an interior of the housing and guide tube due to movement of the movable core.

20. A brake fluid pressure maintaining apparatus for a vehicle, comprising:  
a check valve interposed between a master cylinder and a wheel brake; and  
means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core,  
wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force acting on the movable core, the brake fluid pressure of the wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated

from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake.

21. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 1, wherein the normally-open electromagnetic valve includes a valve shaft in direct contact with the movable core when the movable core is attracted by the fixed core.

22. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 1, wherein the normally-open electromagnetic valve comprises a single spring which is disposed between a tapered valve seat and an upper end side of a cylindrical-shaped valve seat member.

23. A brake fluid pressure maintaining apparatus for a vehicle as set forth in Claim 1, wherein the normally-open electromagnetic valve includes a solenoid part which is devoid of a spring therein.



EVIDENCE APPENDIX

This section lists evidence submitted pursuant to 35 U.S.C. §§1.130, 1.131, or 1.132, or any other evidence entered by the Examiner and relied upon by Appellant in this appeal, and provides for each piece of evidence a brief statement setting forth where in the record that evidence was entered by the Examiner. Copies of each piece of evidence are provided as required by 35 U.S.C. §41.37(c)(ix).

NO.	EVIDENCE	BRIEF STATEMENT SETTING FORTH WHERE IN THE RECORD THE EVIDENCE WAS ENTERED BY THE EXAMINER
1	N/A	N/A

RELATED PROCEEDINGS APPENDIX

Pursuant to 35 U.S.C. §41.37(c)(x), copies of the following decisions rendered by a court of the Board in any proceeding identified above under 35 U.S.C. §41.37(c)(1)(ii) are enclosed herewith.

NO.	TYPE OF PROCEEDING	REFERENCE NO.	DATE
1	N/A	N/A	N/A